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WONDER *Stories*

HUGO GERNSBACK
Editor



GEORGE PAUL BAUER
HENRIK DAHL JUVE

Other
Science Fiction Stories

By

ED EARL REPP

"THE RADIUM MASTER"

By

JIM VANNY



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this month from "The Radium Master" by Jim Vanny, our young explorers are held in the iron grip of the merciless wheeled-robot, while the masked Emperor of Urania transmits through his strange equipment the orders that will seal their doom.

NEXT MONTH

IN 20,000 A.D.!, by Nathan Schachner and Arthur L. Zagat. The mere mention of words cannot convey truly the thrill that the editors received when they read this marvelous time-traveling story. Imagine yourself suddenly rushed through time and finding yourself thrown into the year 20,000 A.D. Into a world of which you knew nothing, and one that even your most fantastic dreams cannot picture? Here is a startling story; the adventures of a country boy in the stirring events of a great civilization.

THE WAR LORD OF VENUS, by Frank Bridge. It has been said that Venus is probably in the same stage of its evolution as the earth was fifty million years ago. What a fascinating subject for a story is the experiences of interplanetary explorers on such a strange, young world! The possibilities for adventures are endless, and our author makes use of them to construct a fast-moving, breath-taking mystery story—a full length novel!

THE TORPEDO TERROR, by Edsel Newton. It has already been acknowledged that it is possible to send an airplane into the air and guide it by radio controls without the need of a pilot. The immense importance of this in a war in the air cannot be overestimated. For by means of radio controls it will be possible for a nation to send thousands upon thousands of planes laden with high explosives over the enemy lines. But "The Torpedo Terror" is not a war story, in fact it is the working out of a great mystery and the saving of the world from a terrible disaster.

A RESCUE IN SPACE, by Lowell Howard Morrow. This story is the third prize winner of the AIR WONDER Cover Contest. A desperate drama is going on in the vast reaches of interplanetary space! A fierce battle and then a chase across millions of miles!

AND OTHERS

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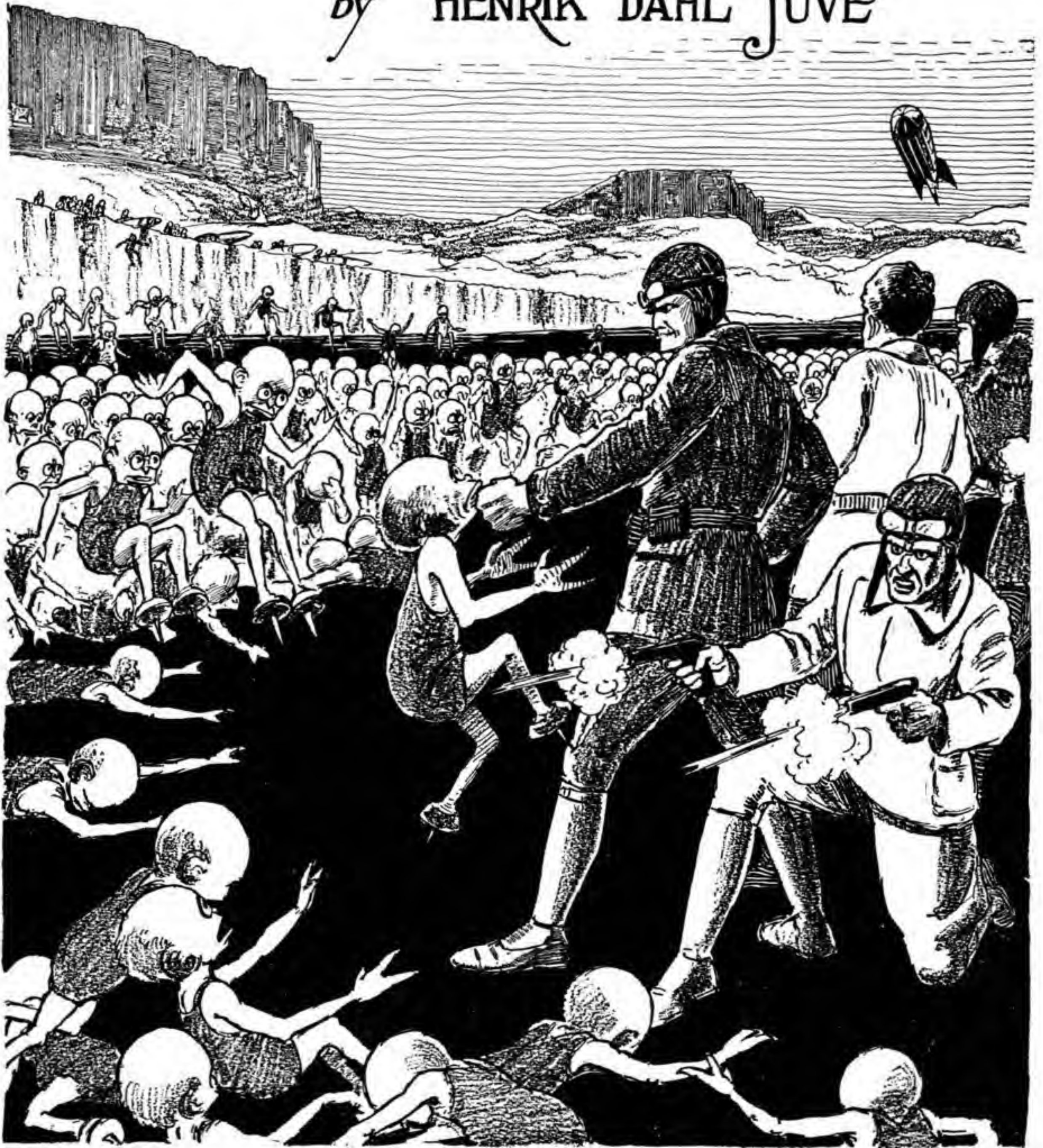
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The Martian Revenge

by HENRIK DAHL JUVE



(Illustration by Paul)

Masters fired desperately, but with slow deliberation. But it was hopeless to stem the tide that rolled in upon them in relentless fury.

THE MARTIAN REVENGE

By the Author of "The Vanishing Fleet," "The Sky Maniac," etc.



R. MASTERS sat in his library studying a mass of blue-prints, still dressed in the high boots and rough clothes he had been wearing while working in the shops.

There was a timid knock on the door. With a quick motion of his left hand fingers that was characteristic of him he brushed his sandy hair back.

"Come in," he called. There was a note of command in his voice.

Somo, his Japanese servant, pushed the door open.

"A man to see you," he announced. "Dr. Grigson from Columbia University."

"Send him right up, Somo. I'm glad he's come."

The Oriental bowed himself out with all the ceremonious form of his native land, much to the impatience of his master. In a few moments he ushered Dr. Grigson into the room. Dr. Masters arose to shake hands with his old-time friend and colleague. Grigson was a short, thin man of middle age, rather nervous and meticulously dressed. What he lacked of the robust and dynamic personality of Masters he attempted to compensate for with austere clothes and precise manners.

"Well, well! I'm certainly glad to see you, Grigson. I suppose you've come to remonstrate with me over the folly of my plans. But sit down and make yourself at home. How has the rheumatism been of late?"

Dr. Grigson selected a chair and sat down. Even his sitting was done with precision.

"The winter has been a trifle severe with me, thank you. But to the point. I did come to urge you to forego the folly you contemplate. I have pursued the scientific journals in a vain attempt to discover the

principle of your vehicle, but I understand you have kept the details a secret. But granted that the contrivance does fly and you succeed in reaching Mars, there is no knowledge of conditions there. You proceed totally unprepared for the exigencies that might arise. If you had some idea of what you might encounter, you could arm yourself with the proper equipment. I fear for your safety."

Masters laughed good-naturedly. "Don't worry about me! Isn't all scientific adventure more or less shrouded in the unknown? Didn't Columbus sail into the unknown, and didn't he persist, even though it was com-

monly accepted that the Atlantic was infested by reptiles? I am going, although I appreciate your interest."

"But the dangers you might encounter en route!" the nervous man persisted. "There are meteors and other small bodies that may cause trouble if not disaster. What do you know of interplanetary conditions?"

"That's exactly what I want to find out! I wish to bring back to science a full report of what conditions actually prevail and also the nature of the surface of Mars."

"Now, you expressed doubt as to the practicability of my invention. I flew it on a trial flight a week ago and found that it performed almost perfectly. We've been making some minor changes that we found necessary, and we hope to leave the earth in about four days. Here, I'll show you the secret drawings and explain them to you."

There followed a lengthy discussion over the prints. Dr. Masters went into mathematics that few men could understand and as he talked Dr. Grigson became more and more nervous. His eyes glowed with excitement as it dawned on him that the scheme was really practicable. And he had in the back of his mind the

knowledge that Masters had already built a ship.

Masters showed how he had applied Einstein's electro-magnetic theories to gravitation by changing the polarity of the ship. This caused the naturally attractive force of the earth's gravity to repel the space flyer, as like poles of magnets repel each other. Dr. Masters had devised a means for changing the gravitational polarity of the ship by insulating it from its surroundings and charging it with a

force which he called *gravopotential*.

"This *gravopotential* is stored as electro-magnetic energy in the ship and overcomes the gravitational attraction of the Earth. The additional energy that the ship has gives it its flight speed," Masters explained.

Grigson Decides

THE front door slammed and someone came rapidly and noisily up the stairs. The study door burst open and a robust young man popped into the room. He stopped abruptly when he saw Grigson.

"Oh, I beg your pardon, Dad. I didn't know you



HENRIK DAHL JUVE

WE can always depend on this author to furnish us with an unusual story, and in this interplanetary adventure extraordinary he has indeed fulfilled our expectations.

He has shown in a really vivid manner some of the perils that attend communication with a strange civilization; and he has illustrated the horrors that might follow if our interplanetary explorers were to injure or offend or outrage the race of the planet to which they have gone.

It is unfortunately true that wherever the white man has gone on this earth he has defiled and destroyed the culture of the people he has conquered. But we may find that any attempt to do that on a strange planet would meet with instant retaliation, and our explorers might then suffer the horrible revenge of an outraged nation.

had company."

"That's all right, Dick, come in! I want you to meet Dr. Grigson. He and I were room-mates at college."

Dick advanced with easy confidence. He was typically "collegiate" in the latest fashion and faddisms of the campus. As he shook hands with the little professor, his every move indicated buoyant life. One would judge that he could lead the students on the wildest larks of deviltry.

"Listen, Dad!" he said when the formalities were over. "I want to go with you to Mars!"

"What put that notion into your head all of a sudden—some girl?"

"Well, no—yes. Say, Helen said that if I went I might get into the movies. And—well, Helen and I want to go, Dad."

"A woman along! Preposterous! Absolutely not! And you: I've had my hands full getting you out of one scrape after another. This is too serious a venture to handicap with your presence—and a woman! No, I'll leave you here for the other professors to worry about!"

"But dad—"

"Enough! You'll stay home—that's settled." There was finality in his voice.

Dick left the study deep in thought. When the door closed behind him, Masters again turned to Grigson.

"Why can't *you* accompany us?" he asked abruptly.

"Good heavens, no!" Grigson was almost horrified at the idea.

"Yes, you can! Just think what it will mean to you if you do go. You'll be one of the big men of the age! Your books will be best sellers and you'll be in demand everywhere."

It was the clinching argument, and Masters knew it. He wanted the little man along because he was one of the few men who could understand the principle of the ship and also because he needed scientific assistance. His crew, composed for the most part of reckless adventurers whom he had trained in their specific duties, was of no value to him from the technical point of view. He did not wish to make all of the observations alone. And knowing something of Dr. Grigson's secret desire for fame, he was playing that card to the utmost.

Dr. Grigson paced the room restlessly, torn this way and that by conflicting emotions. Finally the possibilities for a glorious future overpowered his timidity.

"I'll go!" he said suddenly.

Into the Unknown

SEVERAL trial flights had been made and the ship tested and adjusted. Dick had accompanied them on these flights, but his persistent and ingenious pleas had all failed to influence his father. "No!" was the inevitable answer.

On the fifth of June all was in readiness. The great ship, a sphere of black insulating material over a steel shell, rested in a field on the outskirts of Seattle. A huge crowd had gathered and it was only with difficulty that the police kept the mob from crushing in against the ship. Everyone gazed in awe at the two-hundred foot sphere which had the appearance of a black planet with the little crater-like openings which

were port-holes. Half way up the shell a circle of four-inch guns protruded grimly.

The two professors and the crew were lined up for a last shot by the press and newsreel photographers, while reporters clamored for a last word. At last the crew climbed up the slight incline of the gangplank and one by one disappeared through the door near the bottom of the monster.

"Well, that's over with," said Masters. Then one of the men swung the door to and turned the crank that screwed it into the hull like the breech of a naval gun. It now sealed the opening so that it was air tight. A similar door sealed the lock chamber from the rest of the ship.

Masters looked at Dr. Grigson. His friend was pale, but managed to retain his composure.

"Perhaps after all you wish to stay behind," Masters suggested. He felt a pang of regret that he had almost forced this timid man to go on such a wild adventure.

"No—I—I think that it is better for me to go."

"To your posts!" Masters ordered his men.

The men scattered to their positions, some of them, including the pilots, climbing to the upper decks. Masters and Grigson remained in the engine room for a time as the ship was being started. There was a bark and then a roar from each of the two larger gunpowder turbines and a whine that rose to high pitch as the generators picked up to speed. Because of the limited supply of oxygen-producing materials that could be carried, Masters had invented these powder turbines. The gunpowder was fed into the combustion chamber where it burned, and the hot gases passed through the nozzles of the turbine to the blades where they expanded, finally exhausting into the almost perfect vacuum of inter-stellar space. Masters had worked for years to perfect an alloy that could withstand the high temperature of the burning powder.

This lower deck also contained the four huge vacuum tubes which changed the electrical energy into *gravopotential*. These tubes were about ten feet in diameter and twelve feet high. They were built like seven element tubes with the addition of x-ray and cosmic ray emitters, mounted inside. They were protected by a partition of heavy steel bars. Under the floor were the bomb racks with the controls and sighting telescopes and scales mounted above the floor near the wall opposite the tubes. Inside the lock chamber were two machine guns which covered the outer door. The four-inch guns were mounted on the second deck, each extending through an airtight fitting in the hull.

The ship listed slightly and Masters looked at the people outside. He was amused to see them scatter in wild confusion, evidently fearing that the monster might roll over them. They did not know that enough *gravopotential* had already been stored to make the ship light as a feather.

In another moment the space flyer had left the ground. The upward acceleration, because of the continued storing of *gravopotential*, increased rapidly until it reached the limit of thirty-two feet per second when the pilot stopped the two larger turbines. They were now flying as a freely falling body, except that they were falling away from the earth.

Already the Earth was so far below them that it appeared to be a huge disk. Masters pointed out the governor position on the small direct current machine to Grigson.

"We are now up in rarefied air and the turbine is running at increased efficiency because the exhaust doesn't have atmospheric back pressure to overcome. But come, we'd better go up into the control room."

Now that the ship was fully charged with *gravopotential* they found it necessary to drag themselves about, for there was no gravity to hold them to the floor. It was a queer, helpless feeling that they were never to become fully accustomed to. They followed the handrails, dragging themselves up the stairs to the control room where the shift pilots were seated before the controls and gauges. All the machinery was controlled from this board so that in case of necessity, the ship could be handled by one man. There were six pilots, permitting two men to be on duty at all times. This was also true of the engineers. The rest of the fliers consisted of two electricians, four gunners, an Amalgamated Press representative, a male stenographer and the cook.

Masters scanned the gauges. Their speed was now slightly more than four miles per second and the gauge was climbing steadily toward the seven-mile-per-second limit. At the end of twenty minutes the speed had almost reached this, and the gauge was still rising, although almost imperceptibly. Masters had calculated that they would be able to cover about 604,000 miles per day of twenty-four terrestrial hours. He had arranged his start at a time that would enable them to arrive at the orbit of Mars just when that planet would be at its point of nearest approach to the Earth, that is, 36,000,000 miles away. Since this near approach occurs only once in fifteen years, he considered himself fortunate in being able to grasp this opportunity to reduce their flying time to the least possible, which was slightly over fifty-nine days.

CHAPTER II

Nearing the Planet

THEY had now traveled forty-seven days through the black, intense cold of outer space. The gas thermometer on the night side of the craft recorded a temperature near absolute zero while that on the day side stood somewhat higher. Despite the outer cold, however, those on board were entirely comfortable, for Masters had devised a heating system of coiled pipe in one end of which a small amount of powder was burned. The other end opened into space.

They spent hours staring through smoked glasses at the sun. It was a great ball of fire with flames weaving off into space. So immense were the flames that it required hours of observation to detect that they were actually weaving and billowing. On one occasion, however, a stupendous explosion on the sun had driven great clouds of fire and debris 200,000 miles into space in less than ten minutes.

"Such a blast sweeping the Earth," Masters had said, "would in thirty seconds reduce the cities of the United States to a cloud of incandescent vapor, and in a few

more seconds it would fuse the Earth itself into a shapeless lump."

It was a terrifying world of weird darkness set with blazing lights that seemed to emit no light except to the eyes of the observers. Even the sun seemed to give no light but appeared to be a rent in the black curtain of velvety space. The reckless adventurers comprising the crew were strangely silent. Many times Masters saw those off duty staring at the Earth, which was now only a bright spot in the distance.

They had reached a point four million miles from Mars where gravitation balanced; that is, the pull from Mars was equal to that of the Earth. It now became necessary to dissipate the *gravopotential* stored within the mass of the flyer so that they could allow themselves to be attracted by the pull of Mars.

Masters took a last observation to check their automatic instruments and then went to the pilots on duty.

"It is time to dissipate the *gravopotential* and bring the ship back to normal," he said.

He watched the men close switches to direct the discharge. The men continued this slow dissipation until they were some distance beyond the neutral point of gravitation, and the speed began to drop slightly. The pilot now short-circuited the energy through another switch. There was a loud crackling from the side of the ship where the dissipating plate was located, and they all went to watch it. A spectacular sight greeted them as the violet flame reached a hundred feet into space. Some of the metal was torn from the plate like the sputtering of an x-ray tube and the surface became pitted. Gradually the flame died down and finally ceased altogether. The ship was now subject to the attraction of the gravitation of Mars.

Those on board now turned their attention to the planet Mars. From their position it appeared to be about the size of the moon and it grew steadily in size as they approached. They could plainly see the pole caps and noticed that the one about the south pole was much smaller than the one at the northern extremity. This was due to the fact that Mars was having winter north of the equator. After some discussion, Masters and Grigson decided to land near the equator and learn something of conditions there before risking an encounter with a Martian winter.

There was something eerie about this world of mystery as they rushed majestically through space. As they drew nearer they could discern areas of mysterious brown and of intriguing blue, and a system of precisely straight lines or canals. The theories concerning these phenomena were discussed almost endlessly by the crew, but Masters seemed content to wait until they reached the planet. His attitude was one of indifference, "for," he said, "all our theories can't change whatever they are, and we'll soon be there." Instead, he occupied himself at making observations and writing extensive notes.

As they approached their destination, Dr. Grigson became more nervous. Masters watched him closely. He noticed that his friend was losing sleep and that he spent hours in restless pacing.

"What's the trouble?" he asked.

There was a haunting fear in Grigson's eyes as he

turned to the captain.

"I have a distressing premonition of impending disaster," he shivered. "Ever since I decided to accompany you I have been obsessed by a conviction that I shall never return. Yet the urge to continue was stronger than the thought of danger."

"Nonsense!" Masters exploded with more assurance than he felt. "I have no such feeling. If one returns, we all return. If one remains, no doubt all of us will remain. Cheer up."

But Grigson would not cheer up. Masters went up to the top of the ship where his telescope was mounted. Again a feeling of guilt came over him. "Why," he accused himself, "did I force him to come?" Then he shrugged his heavy shoulders and went to work with his observations.

A Sudden Peril!

FIFTY-SIX days had elapsed since they started on their journey. Masters had been in the observatory and now he came down to the pilot-house.

"We are off our course by three seconds," he said. "We have seventy-one hours and sixteen minutes of flight before we reach the orbit of Mars. If we continue on this course we'll cross the orbit ahead of the planet. Discharge thirty-one and two-thirds pounds of powder through rudder rocket Number Eight. Have the rocket charged and fire it at thirteen and one-half minutes after three. That will put us back on our course."

The pilot issued orders and presently one of the crew telephoned that all was ready. The pilot watched the chronometer and at the exact time specified he touched a button. There was a loud roar and a cloud of fire and smoke shot out from the side of the ship. The craft trembled under the liberated forces.

Masters again went to his observatory to check the result of the rocket. Apparently the calculations had been correct, for he stood up from his computations and returned to the pilot-room, where he found Dr. Grigson.

"We are approaching very close," he said, in order to attract the interest of his nervous friend. "Come up to the observatory for a good look at the planet."

They went up to the top deck and trained the telescope upon the growing planet, which now dominated the heavens with its great bulk. They could see the continents and oceans quite plainly, although there was as yet no evidence of civilization for they were still nearly two million miles away.

For hours the two remained at the telescope eyepiece. At last they felt sure that they could distinguish several cities, but the roofs were of the same color as the land so they found it difficult to distinguish them.

Another twenty-four hours passed and the planet loomed huge and formidable. They could now see that there were many cities and towns built along the canals, and they could even distinguish boats floating on the water. That there was civilization on the planet seemed to cheer Grigson immensely, but still he could not rid himself of his premonition of disaster.

The hours slipped by, while they still maintained a

speed of slightly less than seven miles per second. The time was at hand when they would have to check the speed or crash against the planet. Masters and Grigson confined themselves to the observatory where they made many careful observations and computations. Carefully they watched the time, and they checked their distance from Mars many times. At last Masters gave the order to charge the ship with *gravopotential*.

They heard the whine of the turbines in the engine room as they changed the polarity of the ship. Masters went down to the control room where he watched the speed indicator intently. The ship was now fully charged and the pilot shut off the turbines. Very slowly—so slowly that they had to watch for several minutes before they could detect the change—the speed decreased. As the minutes slipped by and the planet repelled them, the rate of negative acceleration began to show perceptibly. Masters watched this for a time and then went up to make another observation. When he returned his face was wrinkled by a worried frown. Something was amiss!

"We are being pushed out of our course by some other body," he said. "Discharge seven pounds of powder per minute continuously from rudder rocket Number Seven!" he ordered.

Presently, from one side of the ship, a roar began to be heard that continued with the monotonous persistence of a fog horn. The ship now seemed to be overcoming the force that had been driving it out of its course. Masters ordered sixteen pounds of powder discharged from a tube beside Number Seven. This was to force the ship back still more onto her original course.

Again Masters and Grigson took observations and exchanged glances of concern. The force that was pushing them aside was again increasing! They made several hasty calculations and then Masters caught up the telephone and called the pilot.

"Increase the amount of powder burned in Number Seven by one and one-sixteenth ounces per minute," he ordered.

As the minutes slipped by the roar from without became louder and the ugly red light from the rocket flooded the port-hole windows on that side of the ship. The telephone rang. It was the head shift pilot.

"There's something wrong," he said. "We're losing speed too fast. Any orders?"

"No," said Masters. "I'll try to find out what the trouble is first."

The captain swung the telescope about in a wide sweep, searching the heavens carefully while Grigson looked out through the port-hole.

"I understand our difficulty!" Grigson said suddenly. "One of the moons of Mars is interfering with our calculations!"

"Correct!" Masters exclaimed. "Why didn't we think of that before! Let's see, we're about 4,000 miles from Mars, so that means that the moon Phobos is nearby. Can you see it?"

"I haven't seen it, but it should be over on this side—yes, here it is! We can barely avoid encountering it!"

The Crash!

THE crew had sensed that something was wrong and it was only the calm, calculating attitude of Masters that prevented a panic. He ordered less powder burned in the rudder tube so that the repellent force between the ship and the satellite might force the craft out of her course and around the moon. Phobos was rushing through space at nearly forty miles per minute to intercept them. They could all see the little moon now. It was like a huge cannon ball coming at them. Closer and closer they drew, until it seemed that a collision was inevitable.

"Charge all the rudder tubes to their full capacity!" Masters shouted sternly.

With the tubes loaded, they were ready to alter their course if necessary. They had stopped burning powder to hold their course against the repellent force of the satellite; and they were being pushed out of their way and slowed in speed faster than they had calculated. They were now close to the orbit and all were tense, awaiting orders from Masters.

Grigson, who had been calculating their course, finally straightened up. "We won't crash! We shall pass just ahead of the moon!" There were sighs of relief throughout the ship.

It was a matter of minutes until they crossed the orbit of the moon. They saw the little satellite rushing at them from the side, growing larger at an alarming rate. But they were out of its orbit and safe from collision!

Mars was repelling them and reducing their speed; the moon, which had closed in behind them, was also repelling them, but tending to drive them toward the planet. Their original calculations were upset. Masters and Grigson did some rapid figuring and then looked at each other gravely.

"At this rate we'll crash into Mars at about two hundred miles an hour," Masters spoke first.

The planet had grown until it loomed vast and formidable before them, getting larger and nearer with frightful speed. Something must be done, and done quickly.

"Perhaps we—" Masters began and then reached for the telephone. "Fire all the forward tubes at full capacity," he ordered the control room.

The men were all at their posts and tense with the strain. The pilot was evidently awaiting the order, for Masters had scarcely finished speaking before the forward tubes burst into a frightful roar. The pilot reported that the speed indicator was going down more rapidly now.

They looked out of the windows but they could see nothing except the flares of lurid red fire from the tubes and the clouds of black smoke that enveloped the ship. They were flying blindly.

Masters and Grigson went down to the control room to watch the gauges, for they could do nothing in the smoke and flame-filled observatory. They watched the thermometers and speed indicator particularly. Slowly their speed decreased until they began to breathe easier again. Then the thermometers indicated a sharply rising temperature.

"Mars has an atmosphere!" exclaimed Masters. "Can't you feed those tubes faster?"

The pilot shook his head grimly. "Full capacity now."

There was nothing to do but wait. The windows were hopelessly blackened by the smoke, and the flames from the tubes were red and murky. The outside temperature rose steadily but their speed was almost zero.

Breathless moments passed as they watched the race between the thermometers and the speed indicator.

Masters shook his head solemnly and Grigson was white with fear. The captain closed the main switch on the signal board, thus calling all his men to their telephones.

"We are going to crash," he said. "If we don't hit too hard, you may be able to save yourselves by hanging onto something—if we crash hard—well . . ."

White-faced men clung to whatever support they could reach quickly. They had but a moment to wait.

There was a terrific jar and a deafening explosion near the top of the ship. Men were flung about the room, some ripping up the railing to which they were clinging. Masters looked about in a daze. He saw that Grigson, whose small weight had saved him from being thrown about, was still clinging desperately to a railing. One of the pilots was climbing painfully to his feet while the other lay quietly with blood trickling from his nose.

The captain dragged himself to a window and looked out. They had crashed into a body of water. The spray had washed some of the smoke and grime from the window, but he could see nothing but heaving, boiling water and spray. Since their craft was still charged with *gravopotential* it staggered under the tons of water that boiled over it until it was free; then it began rising away from the planet.

Masters leaped to the controls and closed a switch. The violet flame leaped into the atmosphere of Mars with a crackling and sputtering.

"Watch through the window, and when the ship is stationary let me know!" he ordered Grigson.

Grigson needed an order like this to stabilize him. He pulled himself to one of the port-holes and gazed out, while Masters waited at the switch.

"There, we are stationary!" he called out.

Masters opened the switch and the violet flame ceased abruptly. They were now drifting in the light breeze about five hundred feet above the water. The captain ordered Grigson to care for the unconscious pilot while he himself went to inspect the damage.

The engine room was but slightly damaged. Masters had used foresight in bolting the light turbines down more securely than would ordinarily be necessary, and they had not moved. One of the engineers was exploring a broken rib, but that was the extent of the casualties here. In the living quarters he found a wild confusion of bedding and off-shift men, but no one was seriously injured. On the upper deck, however—the one which had struck first—he found that serious havoc had been wrought. When the rocket tubes had struck the water and the discharge was cut off somewhat, the tubes had exploded. The man on duty there had been killed instantly and the room left a mangled

wreck. Masters looked out through the holes where the rockets had been. Because the top of the ship was still toward the planet he could see the water heaving and billowing in the light breeze. He held his hand over one of the holes and felt a strong draft of air rushing out into the thin atmosphere of Mars. He stopped the holes as best he could with some parts of shattered debris.

Then he went back to the control room where he discharged some rudder tubes and thus turned the craft over till the bottom was toward the water. It made no difference to the men, as there was no gravity to give them weight, but this was the normal landing position.

CHAPTER III

A Strange Reception

FOR two hours they drifted in the breeze while they attended to the bruised men and set the ship in order. While the men were at work, the captain and Grigson repaired the slight damage to their telescope and made some observations. They concluded that they had splashed into what astronomers call the "Dawes Ocean" at a point near the mouth of "Kaiser Sea."

"'Dawes Continent' is probably the largest body of land on the planet," said Masters. "Perhaps we should go there first."

"It seemed to be thickly populated," Grigson agreed.

Masters gave orders that two of the rudder rockets be fired continuously. The jets of flame and smoke roared into the clean air of Mars as the ship slowly gathered speed toward the north and west. As they traveled, Masters spent his time in the observatory where his laboratory equipment was kept. First he took pressure measurements of the atmosphere of Mars, and found it to be only eight pounds per square inch, instead of the nearly fifteen pounds per square inch on Earth. He next drew a sample of the air and analyzed it. He found it to be almost pure oxygen with a small amount of nitrogen and a trace of hydrogen. There was very little water vapor. He turned to Grigson who was watching him.

"Perhaps we can live here if we are careful not to breathe too deeply," he said. "At least the air is not poisonous to us."

Just then there came a shout from one of the lower decks and they looked out of a port-hole. What was their astonishment to see a bright metal airship darting this way and that with amazing speed. It was cigar-shaped, without wings, and only about fifty feet long. Evidently her pilot called others, for in a few minutes they could see hundreds of the little ships swarming out to meet them. They swarmed about, hovering stationary in the air and then darting away like hummingbirds. It seemed miraculous to those on the space flyer that they could fly in such congested traffic without colliding.

"We are being met by the reception committee," Masters laughed.

"Land ahead!" someone shouted.

All eyes strained to make out the land, but it was still a mere streak on the horizon. It came out of the water rapidly, however, and in the crystal-clear air they could soon distinguish the buildings built along the shore.

At last they flew over the land. Hundreds of small black buildings with red tiled roofs were scattered everywhere, skirting the crooked streets. They could see that the soil was of a peculiar yellowish red or light brown color and even the vegetation was more brown than green.

"Stop the ship over that open space and lower it to the ground," Masters ordered.

The rudder tubes that had been propelling them were shut off and the ship drifted until it was over the clear space. A heavy discharge from the opposite tubes stopped the ship and the *gravopotential* discharge switch closed. Masters watched the little Martian ships dart away in fright from the flame at the dissipating plate.

Gently as a feather they touched the ground, but they remained in the ship to study their surroundings before emerging. The guns had been loaded and were now manned by the gunners in readiness for any hostile move that might be made on the part of the Martians. For several hours they watched the ships dart about. Presently one of them landed and a tiny man stepped out. He was only three feet high, with queer, short legs and small feet that seemed deformed. Masters was reminded of the Brownie pictures in the children's books. The Martian stood beside his ship for a long time before he ventured any nearer. Instead of walking he advanced in quick jumps like a bird.

"The attractive force of their gravity is so slight that they can jump easier than walk," Masters remarked, thoughtfully.

The little man came up close to the ship and then went around it, eyeing it curiously. Presently, when they saw that the monster was apparently harmless, other ships landed and in a short time the field was crowded with gesticulating people. Masters hung a microphone out of one of the port-holes so that they could hear over the amplifier and loudspeaker despite the thick walls of the ship. They listened for awhile to the crowd jabbering away in short sentences, which were broken as though the speakers had not sufficient lung capacity for longer ones. Their voices were disagreeably high pitched, some of them ranging almost above audibility.

"Evidently their lungs are very small," Masters said. "Notice how flat their chests are. I suppose that that is due to the almost pure oxygen of their atmosphere."

One of the little men, perhaps bolder than the others, came up to a port-hole and stared into the ship. His green eyes were large, and they now opened wide with surprise when he saw the huge men inside. He hopped back and gesticulated wildly to the others and a wave of excitement billowed through the crowd. Others now came close and pressed their faces against the lowest port-holes. Their tiny noses and wide, square jaws lined with flat teeth were hideous. But their high foreheads indicated intelligence.

"Let's go outside," said Masters. "I'll go first."

"Perhaps I'd better go first," suggested the news

correspondent. "If something should happen to you we might all be lost, but if I should get killed you will be here to take the others back to the Earth."

Masters objected, but Grigson reminded him that the lives of all rested in his hands. To endanger himself would be unjust to the others. Finally he consented.

Danby Experiments

THE correspondent, whose name was Danby, pocketed two .45 automatics and several hand grenades and then announced that he was ready.

"Stand by the big guns," Masters ordered. "If they show hostility cover Danby until he gets back. Better change the loads to shrapnel. Anderson and McQuire, go into the air-lock with Danby and man the machine guns. Keep that door clear no matter what happens. Now Danby, remember that the air here is almost pure oxygen, so don't inhale much of it. Try breathing very little and experiment with it until you find the proper amount. Bring one of the men back if you can. We'll fit him with an oxygen tank and mask so that he can live in this air. All ready?"

The crew reported that they were ready and the three men entered the air-lock. The door was closed behind them and Masters watched them through a window in the side. An oxygen line fed the pure gas into the chamber, so that, as the pressure was slowly reduced, they could breathe enough of the gas to remain comfortable. At last the pressure in the lock was equal to that outside and McQuire opened the outer door.

Danby signalled through the window. He pointed to his chest and then held his hands close together, indicating that he was taking very small breaths. With a wave to Masters he slid to the ground.

Masters went to one of the port-holes in the side to watch. He saw Danby walking, but with evidently some difficulty. For although he weighed one hundred and sixty pounds on the Earth, here he weighed only sixty, and had difficulty in keeping his feet from slipping as though he were walking on ice.

The Martians drew back before him. Danby was twice their height—a giant among them. He attempted to get close to them, but they cleared a wide space about him and refused to come near. Danby held up his empty hands in token of peace but they evidently did not understand. Finally he sat down and waited. He had observed their curiosity and was evidently giving them an opportunity to come up for closer inspection.

Masters was delighted when he saw that Danby was making good use of his time. He saw him scoop up a handful of the brown soil and put it into his pocket. Then he picked specimens of whatever plants he could reach.

Apparently the Martians felt more confident now that the giant was seated, for some of the bolder ones ventured closer. Since nothing happened they came still nearer, and after a time one even dared to touch Danby's foot. Still he made no sign and when he finally looked up he found himself ringed in by little people and big, staring, green eyes. Masters watched Danby draw a gun in one hand, but the little men made no move to molest him. With the other hand he now reached out slowly and touched one of the Martians.

The man drew back slightly, but when he was not harmed he permitted Danby to lift him clear of the ground and appeared delighted that he had escaped harm.

Gradually they became more and more at ease. Masters saw Danby point to one of them and then to the ship, but the little gnome drew back. They became more familiar, however, and presently one of them volunteered to enter the black flyer with Danby. The captain watched the two approach the ship, while the crowd shouted in a babble of high-pitched voices. He went to the window in the air-lock and saw them enter the chamber. The little visitor stared at the two gunners and their weapons. It seemed that he was all eyes and curiosity.

But when they tried to put the oxygen tank and mask on him he started to flee in terror. Danby first put it on himself to show that no harm was intended, but still he refused. Masters rapped on the window.

"Close the outer door and let in some air," he shouted. "When he finds the oxygen thinning and has difficulty in breathing perhaps he'll consent."

McQuire swung the heavy door into place and screwed it down. The air from the main part of the ship hissed into the chamber and presently the little man found that there was not enough oxygen for his tiny lungs. He showed signs of terror. Danby held the mask close to his face and when he felt the pure oxygen enter his lungs he understood, for he donned it eagerly. Danby showed him how to regulate the supply and he got the idea immediately.

When the pressures were equalized one of the crew opened the inner door of the chamber. Danby led the little man into the engine room, where he stood staring about with his big green eyes, while those in the ship stared back at him. On the Earth he would probably have weighed about sixty pounds. On Mars his weight was only twenty-two. He was dressed in a tight-fitting suit of spun metal. It was of a dark blue color and cut like a bathing suit. His legs and feet were bare. Each grotesque hand was equipped with only three fingers.

Becoming Acquainted

HE could scarcely stand up on the steel deck. They examined his feet and found that they were round and flat, about the size of a medium-sized radio dial. In the center of each foot was a bony or horny spike, evidently used to keep his feet from slipping when he hopped. One of the engineers examined his foot, taking some measurements. He went to the storeroom and presently returned with two disks which he had cut from a sheet of heavy rubber packing. He had cut a hole in the center of each, and these he forced over the spikes on the bottoms of the man's feet. He could now stand on a flat surface instead of on a point. The Martian examined the unique shoes with great curiosity and appreciation.

First they showed him about the engine room. He was particularly interested in electricity, for he pointed to the switches and wires with great enthusiasm. One of the little direct current generators was running and he placed his fingers across the terminals and nodded.

Then he ran his finger in a straight line on the floor. Masters was delighted.

"He means to tell us that it is direct current," he said. "Someone give him a pencil and paper and see what he does."

Anderson gave the little man a stub of a pencil and a leaf from a notebook. He showed the visitor that the pencil would make a mark on the paper. He was delighted with this and quickly covered the paper with strange characters and showed them to Masters, who shook his head.

Then they went to the control room where the loudspeaker was located. The visitor listened to the excited chatter of the crowd outside and grinned. Masters turned off the current and all was silent. Then he turned it on again. The visitor seemed to understand, for he looked behind the dynamic cone, traced the wires and nodded.

In the observatory he looked through the telescope. His mask bothered him but he adjusted it and put a big green eye to the eyepiece. He nodded and pointed to the telescope, then to the sinusoidal curve on the paper, and then outside. Masters concluded that he was trying to tell them that Martians used an electric telescope of some kind.

The tour of inspection over, the little man gave the pencil and paper back to Anderson. He took off the shoes and returned them to the engineer, and then, accompanied by Danby and the two gunners, entered the air-lock. When the air pressures were equalized, he removed the oxygen tank and the two Martians left the ship.

Masters watched them from a port-hole. Over the loudspeaker they could hear much excited, high-pitched talk as the people plied the adventurer with questions. He tried to answer them all at once. Now they crowded about Danby and pointed, first to themselves and then to the ship.

It was clear that they all wanted to visit the flyer!

Masters watched Danby to see what his answer would be. The correspondent pointed to the sinking sun and shook his head. Then he pointed to the east and made a motion of the sun rising and then pointed to them and then the ship. Tomorrow they would be permitted to visit the ship. This evidently satisfied them for they opened a lane for Danby as he started back toward the ship.

When the inner door of the lock chamber opened, Danby reported to Masters.

"They all want to visit the ship," he said. "I indicated that they would be permitted to in the morning. I hope that you don't object?"

The captain was thoughtful. "They seem to be peaceable enough. I suppose that we can drop the atmospheric pressure inside the ship to balance that outside and then open both doors in the lock. We could let them in a few at a time. And we wouldn't have to bother with oxygen tanks for them. That would give us a good opportunity to permanently repair those holes at the top of the ship where the tubes exploded. We'll try it and if they have I don't see why, it won't be all right."

"I think so," said Danby.

CHAPTER IV

A Grim Warning

THE sun went down behind the western hills and night closed in suddenly. During the night Masters and Grigson analyzed the soil which Danby had brought in and found it to consist mainly of metallic oxides. Even the plants contained a great percentage of oxygen and they were astonished to find that they were warmer than the surrounding air.

"Warm-blooded plants!" Masters exclaimed. "I wonder if they remain warm all winter. Perhaps we can find out some time."

The next morning dawned bright and clear. Because of the rare, dry atmosphere the sunset and the dawn were not heralded by soft twilight and glowing colors. When the sun set, the sky became dark almost immediately. When it rose, the daylight came also with startling suddenness.

Masters looked out and was amazed. Thousands of little ships had come with the sun and other thousands were flying toward them from every direction. The countryside was crowded by a vast throng, all patiently waiting to visit this ship from outer space. The news had traveled fast, perhaps by some sort of radio, and it seemed as if half of the inhabitants of the planet must be present!

After breakfast, preparations were made for the reception. Armed guards were stationed at various points and the two machine guns in the air lock manned. The engineers cut a number of washer-like shoes from sheet packing and these were piled up in the lock chamber. Pure oxygen was released in the ship as the pressure was being reduced. When all was ready the outer door was flung open and several of the little people admitted.

Like the first visitor, they were conducted from one deck to the next, examining everything with keen interest. They were so quiet and orderly that it seemed a farce of routine to keep the guard posted. When this group went out others took their places. As the forenoon wore on and nothing alarming happened, Masters gave orders that they be permitted to file through in a continuous line instead of in groups. He was in the engine room when he was called to the observatory by the guard stationed there.

"There are five or six around the telescope. They act like they know what they are doing. I thought that you would like to know," he informed the captain.

Masters went over to the telescope where he was astonished to find several of the little men evidently making observations and then calculating results. Their figures were queer, scrawling characters which were utterly meaningless to Masters. They seemed to be discussing something of great interest to themselves. When the captain joined the group one of them pointed to the ship and then to the telescope. Evidently he wished to know where they had come from.

In the light atmosphere of Mars some of the brighter stars were visible to the naked eye during the day, and with the telescope there was little difficulty in locating any body that was not too close to the sun. Masters

located the Earth and focused the telescope upon it, setting the clockwork mechanism to keep the planet within the field of view. One by one the little men looked through the eyepiece and nodded. Masters then pointed to himself and the ship and then to the telescope—they were from the Earth.

The effect upon the astronomers was magical. They became excited and chattered in their high-pitched voices. Others in the line caught up the word *Slee*, which was evidently their name for the Earth, and in a few moments the entire throng outside was a mass of screeching excitement. One of the astronomers then caught Masters' attention and motioned that they too had tried to fly to the Earth, not only once but several times, but each attempt had been a failure.

Masters looked again at the Earth, a tiny sphere in the remote distance, and wondered if they would ever return to it. While he looked another body floated rapidly across the field of view. It was the Martian moon, Phobos, on one of her three daily trips around the planet. He considered it worth his time just to see this remarkable moon which circles Mars three times as fast as the planet rotates on its own axis so that it rises in the west and sets in the east.

The captain went down to the control room where he found Grigson deep in thought and greatly agitated.

"What's the matter?" he asked. "You're not afraid of these people, are you? I'm sure that if we were to leave the ship here for several years nothing would be molested. Haven't you noticed how methodically they replace everything that they examine and how careful they are in handling apparatus?"

Grigson frowned nervously. He was more agitated than he had been on the entire journey.

"That," he said, "is just what causes me anxiety. Perhaps you have noticed that there are no legal authorities, no police, no criminals—apparently no organization of any kind. I would feel more secure if some of them were prone to steal articles from the ship and were punished according to some civil or moral code. As it is, I fear that these people are not immoral but unmoral—that they have no idea of what is right or wrong. It is that observation which alarms me. We felt that we were in danger of serious injury while we were landing, but I am now certain that our danger is a hundredfold."

Masters laughed. "Perhaps they are so far advanced that they don't require legal restraints. At any rate, I don't see what that has to do with our situation."

"If you had studied psychology instead of mechanical engineering it might mean more to you. As it is, I shan't speak further of my fears, for I am sure that you would only ridicule me." There was a hint of acid in his voice.

"If I had studied psychology instead of mechanical engineering we'd have been deprived of this wonderful opportunity," Masters retorted.

That ended the conversation and the captain went outside. He found Danby exposing hundreds of feet of moving picture film.

"Wait until we get this film on the screens in old U. S. A.," he laughed. "I can hardly wait until we get back."

"According to Dr. Grigson we might experience some

difficulty in getting back," Masters smiled. "But we shan't try to escape until we examine their cities and get some pictures of them."

Danby stopped cranking to laugh. "What's the matter with him? He reminds me of an old reporter we had on the staff—we called him 'grandma.' You better not let him out of the ship—he might see his shadow."

Opposition!

AS the day wore on and countless thousands visited the ship, a few women began to appear and presently some of the older children were scattered along the line. They were all similarly dressed in the metallic, bathing-suit-like clothing, but the colors were not so bright as those of the men. Masters induced one of the men to bring him a suit which he examined with great interest. It was light and pliable but so tough that it was an effective suit of armor. He decided that it was made of a steel which Earthlings know nothing of. When Grigson examined it, he was more nervous and agitated than ever. True to his promise, however, he said nothing.

For several days the procession moved through the space flyer, but at night the ship was closed and the air pressure within brought up to that of the Earth. These were nervous days for Grigson, triumphant ones for Masters and hectic days of alternate picture-taking and writing for Danby and the stenographer. So orderly were the little visitors with the green eyes and so insatiable their curiosity that Masters did not insist upon a guard and the members of the crew wandered about within the ship or outside as it pleased them.

The days slipped by and the Earthlings became quite at home on Mars. They wandered about the cities, sometimes remaining there over night. Many times they left the ship unguarded but not once was a single article disturbed, although the Martians were constantly coming from remote parts of the planet to view the craft.

The buildings of Mars were of a dense black material, which Masters later learned to be slag from the many iron smelters. It was cast in molds, the resulting blocks being about one foot square and eighteen inches long. These were cemented by a peculiar mortar of a highly corrosive nature, which fused the blocks together with the result that the houses were practically of one piece.

The Earthlings found it difficult to get into their houses, for the doors were only four feet high and the ceilings only five and a half to six feet high. The floors, like the streets, were made of a rubber-like substance into which the spikes on the bottoms of the Martians' feet sank until the circular bottoms of their feet rested against the surface. When they lifted their feet again, there was no evidence of a hole left behind. Masters shoved the blade of his penknife into the material but when he pulled it out he could not find a mark. Their windows were glazed with a pale green, flexible glass made from some of the by-products of their iron furnaces.

Although Dr. Grigson accompanied the others on these trips into the cities he became more and more nervous. He withstood the good-natured banter cast his way by others of the party and said nothing.

It was on one of these trips into the city near which the flyer had landed that the friendly attitude of the inhabitants changed to hostility. Masters and Danby had been exposing more moving picture film and were searching for something new to interest them when they found, near the heart of the city, a strange building with a dome-shaped roof made of a steel framework and covered with queerly lensed plates of pink glass. They ground out a few feet of film from different angles and then proceeded to investigate. As they approached the entrance, however, they were surprised when one of the passers-by emitted a shriek. The alarm was caught up by others until the entire city was in a turmoil. Martians came hopping from all directions and clustered about the building as if to protect it from intrusion.

Masters and Danby hesitated. Never had they been met by such opposition.

"Must be some kind of holy of holies," Danby remarked. "What shall we do?"

"I suppose that we'd better retreat," said Masters. "Suppose we come back again tonight when the city is sleeping?"

"Fine. I don't want to leave here until I find out what's inside of that building. Let's go now so that this infernal hub-bub dies down."

They started away from the building and the Martians ceased their alarms. Masters looked over his shoulder to find that the crowd about the building was dispersing rapidly and the street was assuming an aspect of normality.

That evening when they told the others about their discovery Grigson became white with fear but said nothing.

"Tonight, when they are asleep, we are going to return and investigate," said Masters. "These people seem to retire with the sun and never stir during the night so I don't think that they have guards about. I suppose they think we do likewise. I know it is rather an underhanded trick, but there is something in that building of supreme importance and which may add a wealth of material to our records."

"Please forego the material," Grigson begged. "If they should discover that you have been there they may turn upon us and annihilate us. I feel that I understand these people better than you do, and even now I can see dangers of which you are totally unaware."

"But, my dear doctor," Masters objected, "I see no harm in merely looking into the building. And we are here to gather data, regardless of the dangers we may encounter. We have decided—Danby and I will go tonight to visit that queer place."

CHAPTER V

Through the Dark City

THE two moons of Mars were shining that night when Masters and Danby started on their stealthy investigation. Even the two moons reflected but a fraction of the light cast by the Earth's moon. Before they reached the dark, sleeping city, the flighty Phobos had set in the east and the pale radiance of Deimos was scarcely enough to light their way. They stole through the deserted streets between the lanes of black houses.

Their shoes made no sound on the soft streets. Masters felt like a thief in the night, but, he reflected, this was a scientific expedition and he felt somehow justified.

They had no difficulty in finding the queer building with the dome of pink glass. Despite the Martians' knowledge of the sciences, their houses were wired for many conveniences but not for light. Masters had come to conclusion that they knew nothing of electric light, but now he was surprised to see a pink light emanating from the dome and casting a pale radiance upon the surroundings.

Cautiously they advanced to the edge of the low dome and attempted to peer through the glass. But they could see nothing, inasmuch as the glass was molded into lenses. They stole around the building to the door, where they hesitated a long time while they listened. Not a sound came to their ears.

Carefully they opened the door, which, like all other doors in the city, was not fitted with a lock. They found themselves in a tiny ante-room where they stooped under the low ceiling. Another door led into the main part of the building. They opened this cautiously and stood there in utter amazement. In the soft pink light coming from many filamentless electric lights were trays upon trays of eggs! They advanced into the room after assuring themselves that no one was in sight. It was insufferably hot and damp and an odor of stale fish permeated the air. The eggs were about four inches in diameter, soft-shelled and of a light brown hue.

Certain now that they were alone, they wandered among the trays.

"What is this all about?" Danby asked.

"I'm not sure, but it appears to me that these people lay eggs like birds and this is the community incubator. In fact they are like highly-developed birds. No wonder they objected to our coming here."

They found a stairway leading down into the basement. They walked down the steps and found themselves in a smaller room where the eggs were hatching. There were but a few eggs here—they counted only ten. Two of these had hatched and the tiny Martians were kicking and wriggling in the soft pink light. Another was just tearing the shell away with the spikes on his feet.

"Just as I thought," said Masters.

"Suppose we take one of these eggs back to the Earth with us?" Danby suggested. "If we come back with a story like this no one will believe us. We'll have to bring back an egg to prove it."

"No," said Masters. "These are to be living, thinking beings and we can't destroy a life by taking an egg. No, if you don't think that they will believe your story, don't tell it in the first place. Come, we'd better go."

Masters led the way up the stairs and through the upper room. Perspiration was dripping from his face when they reached the cool of the night air. He felt as though he had intruded into a sacred place, and he said nothing as they stole out of the city and across the open to their space flyer. He did not notice that Danby had something under his coat that bulged and which he carried with great care.

In the Canals

THE next morning Masters noticed that Danby acted queerly. Several times while they were eating breakfast he left the table to look out at the Martians who, as had become their custom, waited for the door of the ship to open that they might visit the flyer. Every day there were new arrivals from distant parts of the planet, always coming with the sun.

Masters had been telling the others about their discovery of the night. Grigson had been listening until he could contain himself no longer.

"You didn't take any eggs, did you?" he asked.

"No," said Masters. "We didn't disturb a thing. We felt that it would be murder to take one."

Again Danby went to the port-hole to gaze out over the scattered groups of people who waited patiently for admittance.

"What makes you so nervous this morning, Mr. Danby?" Masters asked.

"I was just wondering if they had discovered that we visited the incubator last night," the reporter muttered.

"But we didn't disturb a thing—how should they know?"

"After we got back last night I wondered if we might have left a shoe print somewhere for them to discover. I began to worry about it and—well you know how a person wonders, when he's at the theater, if he banked the fires and locked up the house before he left. That's the way I feel."

"But their streets are made of that rubber-like substance and are clean, so how could there be a shoe-print to betray us? And we did no harm, so why worry?"

For several days Danby refused to leave the ship, but gradually, when nothing happened, he became more confident and resumed his photography. The people seemed just as eager to show them about their city as before, so he concluded that they had not discovered the intrusion.

Masters was particularly interested in the canals of Mars, but as yet had not been able to make the inhabitants understand what he wished to see. One day, however, he procured a chart of the planet made by the people themselves. It was a plate of rustless steel on which they had stamped or engraved the chart and filled in the lines with a black corrosive ink. Here he found the canals and when he pointed them out to a group of Martian scientists they nodded. They pointed out that they were digging another canal parallel to one of the older ones and indicated that they would take the visitors to see the project the following day.

That night in the space flyer Masters told the others about the invitation. Everyone wished to see the canals and particularly the one under construction. It was finally agreed that they would all go. Masters produced the chart and showed them the location of the proposed canal which was far north of the equator in the cold of the Martian winter. The discussion came to an end and the captain replaced the chart, for he wished to take it back to Earth with him.

The next morning the Martians landed a number of their little torpedo-like ships near the space flyer and

waited for the Earthlings to emerge. They could carry only one passenger in each craft, so the crew was scattered in as many ships. Masters crawled into one of the tiny ships and found the cabin so small that he could scarcely turn around. He finally managed to make himself somewhat comfortable. When all was ready the pilot moved a lever and the craft shot into the air with amazing speed. It darted about in response to the pilot's slightest touch with such jerky speed that Masters found it difficult to remain seated. The ship was handled by two levers, one of which was mounted in a universal joint in the dash. The up and down motion of the lever caused the ship to rise or descend while the motion to the left or right caused it to turn in the direction it was swung. The other lever controlled the speed. The Martian demonstrated his ship by moving the lever in a circular motion. The craft traveled in a spiral through the air with such sickening speed that Masters signalled him to stop.

The fleet traveled in a swarm, the ships sometimes coming so close together that they almost touched. There seemed to be no collision hazard, however, and Masters gradually ceased to worry about the seemingly reckless flight.

For several minutes they flew along the ocean shore and then swung inland. There were miles of tilled ground but no buildings, for the Martians live in cities along the water and fly to their fields. Presently they sighted a city-skirted canal far ahead. It seemed but seconds before they were over the canal and Masters was amazed at its size. He judged it to be about ten miles wide and of great depth. The quiet water was somewhat above the surrounding land and small ditches taken from the canal carried water to the fields. Smokeless, steamless tugs hauling great barges loaded with food and building material labored slowly over the placid surface.

An Amazing Sight!

AFTER crossing the equator they flew over a vast cluster of iron smelters and steel mills. The Martians used few metals other than iron and steel, but this metal, treated through their wonderful knowledge of metallurgy became rustless, soft or hard, colored or white as suited their needs. An alloy became a better electrical conductor than copper and much stronger. Another alloy was lighter than aluminum, yet it was strong enough to make an ideal armor plate for battle-ships had they used them.

In less than an hour they were far north of the equator and flying swiftly along the canal. Dotted the sheltered hollows were flecks of snow which became bolder as they continued northward, until finally the ground was almost uniformly white. Now they left the city-bordered canal and darted to the left until they were about twenty miles from the waterway. Below they could see many ships like the ones in which they flew. Several huge ones were resting upon the snow, while their pilots worked on a line that stretched far to the north. The Martian pushed the stick down and pulled the speed control into reverse. The ship stopped suddenly and dropped straight down, touching the ground lightly.

Masters left the ship and strolled over to where the men were at work. He was puzzled when he saw them cutting a narrow slot in the frozen ground. This cut was made with a long knife or chisel operated by an electric hammer. As the cut became deeper, longer knives were used until the forty foot knife was buried. The slot was now about five inches wide and as deep as the longest knife. Hundreds of men were at work as far in each direction as Masters could see. The slot had evidently been surveyed, for it was perfectly straight.

In the early afternoon the work was completed. The large ships now lifted from the ground and hovered over the slot. Hoses dropped from the huge craft were guided by the men on the ground. Masters went up close to one of the hoses and saw an amber liquid flowing into the trench. This liquid, which was like a heavy oil, was slightly warm and steamed in the chill air. When the trench was filled the ships withdrew, rapidly dwindling away in the distance toward the south. Masters' first thought was that this was an explosive and he prepared to leave the vicinity, but the Martians calmly gathered up their electrical apparatus and then stood watching the liquid.

Gradually it congealed and then solidified. As it became colder an amazing thing happened. Instead of contracting when chilled, this now solid amber wedge expanded gradually to many times its former width. The frozen earth, as it was shoved aside, creaked and grated, sometimes snapping loudly. Above the trench the expanding substance puffed up like a huge amber sponge. By the time the wedge ceased expanding, the canal was about ten feet wide. The huge freighters had by this time returned with more liquid which they poured over the expanded solid. Instantly the solid melted and contracted like a punctured balloon, leaving but a small quantity in the bottom of the trench. More was added to this from the freighters. Again they left for the south. This time, when the liquid solidified and expanded it shoved the walls of the canal over two hundred feet apart. Masters concluded that the liquid was used over and over. In the morning when it was cold farther south they used it there and then during the middle of the day when it warmed they pumped it up and carried it to the north where the day remained cold. The process of expanding the canal was repeated until the ditch was some eight miles wide.

CHAPTER VI

Green Eyes of Hate!

IT was now late in the afternoon and the men were preparing to return to their winter homes in the south, when hundreds of the little ships appeared upon the southern horizon. Masters and his men were walking over the frozen liquid picking up samples of it for future analysis. Dr. Grigson, as it happened, was some distance away examining the seed pods on a cluster of dried weeds.

The ships arrived from the south and settled in droves all about them. Without warning, the air became electrified with screeching excitement. The workmen dropped their tools, their green eyes blazing with hate. Be-

fore Masters could recover from his astonishment the little men had attacked Dr. Grigson and overpowered him with sheer numbers. In a moment the little scientist was trampled into a shapeless corpse. The wave of infuriated Martians now turned upon Masters and his crew.

The Earthlings stood rooted to the ground in amazement for a second. Then Masters awoke to the situation. The Martians meant to murder them!

"Stand together, boys!" he shouted, drawing his automatic.

He took careful aim at the breast of the foremost man and squeezed the trigger. The heavy slug knocked the little man completely off his feet, but his metal suit had stopped the bullet and he leaped up and came on again.

"Aim at their faces!" Masters shouted.

Back to back the little ring of men faced the oncoming horde. They were surrounded now, and the mass was closing in. As fast as they could shoot them down others came to take the places of the fallen ones. Masters, his ears numb from the continual roar of the heavy pistols, knew that it was a lost battle. Yet to stop firing meant certain death for them all—there was no mercy in that ring of blazing green eyes.

But the firing was beginning to tell upon the Martians. The bark of these death-dealing machines was evidently new to them, and they fell back, leaving the surface of the frozen canal strewn with dead. The Earthlings took the opportunity to reload.

"If we can hold out until dark they may go home," said Masters hopefully, although he felt desperate. "Then we might be able to escape in the dark. I was a fool to leave the ship."

But the Martians were closing in again. They came on rapidly, hopping over the frozen ground.

"Make every shot count!" shouted Masters above the din of shrill voices and the clatter of thousands of horny spikes.

Again the .45's roared defiance and the oncoming wave thinned only to close in again. It was difficult to aim at any particular hopping Martian, but they were so thick that one could hardly miss. The gun in Masters' hand leaped steadily as it belched heavy slugs into the green-eyed faces now close to him. Then the hammer snapped down on an empty chamber. With a vicious swing he brought the weapon down on the head of a Martian who was trying to grapple with him, and then slipped in a fresh clip. Before he could bring the gun up one of the Martians kicked him on the leg and with the sharp spike tore open the captain's leg from knee to ankle. The sharp, seering pain made him faint for a moment, but he shot the man down and fired methodically into the faces of those closest to him. The dead were piling up and the advancing Martians stumbled over them.

Again they withdrew, this time dragging the dead and injured with them. They were evidently preparing for a final rush.

Masters felt weak. He had been breathing more deeply than usual and now the pure oxygen of the atmosphere made his heart pound and his blood hot. He reeled around to look at his men. They had fared little

better than he and were sitting down to keep from falling.

"Don't breathe any more than you have to," Masters warned. "How is the ammunition?"

"Almost out," said Danby. "One more rush like that and I'm through!"

Masters looked desperately at the sun; but he saw it would be an hour before it set. A hopeless feeling came over him—they could never endure another rush like the last! A thousand ideas flashed through his mind. What had Grigson said about these people? If he had only listened to him! But it was too late—

Desperate Moments

A GAIN the horde rushed at them. There was a new note in their high-pitched voices. They had wounded Masters and that fact seemed to encourage them, for they now came on with fiendish light in their green eyes. They were rushing in to the kill. Masters fired desperately, yet with slow deliberation. But it was hopeless to stem the tide that rolled in upon them with relentless fury. The heavy slugs seemed only to make them more reckless and determined. Masters slipped home his last clip of cartridges and resumed firing. Now they were upon him and he used the gun as a club. Desperately he brought it down upon one head after another. A deadening pain came from his injured leg and seemed to be dragging him down. A Martian leaped at him and before he could knock him down his other leg was torn open.

"The cook is down!" he heard Danby yell, but he dared not turn his head to see what was going on behind him. Two Martians leaped upon him and tried to bite into his throat, but he beat them off. While he fought these, others tore at his legs until they felt as though they were ribbons of flesh. Another enemy sank his teeth into his left hand and he brought his gun down automatically. His blood was boiling from the rich air and his head reeled. It was the beginning of the end.

His ears roared with a strange noise. He could not tell whether it was the effect of the air or of something outside. As in a delirium he fought on. Four of the little men leaped upon him and went after his throat with their ugly teeth. He knocked one of them off, but his knees were giving way beneath him. His arms were like lead. He got his hand over the throat of one and brought his gun down. But others leaped at him and slowly bore him to his knees. The roar in his ears became louder and he became confused.

Suddenly there was a terrific explosion. The Martians relaxed their grip on Masters and cried out with shrill screams of terror. Masters staggered slowly to his feet in confused relief. He stared at the retreating Martians, wondering vaguely what had happened. To his left he had a glimpse of a dark object falling. It touched the ground and seemed to rebound with a terrific roar. Brown earth, black smoke and Martians flew in every direction. Another roar and again the ground erupted smoke and Martians. Two more eruptions and the little men scattered in wild confusion toward their ships.

Masters, staggering like a drunken man, looked up. What was his amazement to see his own ship hovering

over the battlefield! He saw a blaze of violet light come from the bomb discharge tube and a black object drop out of it. In an instant there was another ear-splitting concussion and more debris bounced into the air.

"Who could be operating that?" he wondered. "All my men are here!"

Desperately he waved the ship to come down. Almost instantly a flame of violet blazed and crackled from the *gravopotential* discharge plate, and the ship settled down beside him. The door banged open and the men dragged themselves and their wounded to the craft. Masters, staggering under the load of the unconscious cook, crawled into the lock chamber. From here he helped the others with their burdens of disabled men. Danby, only slightly bruised, brought up the rear, covering their retreat. He was just about to crawl in when one of the tiny ships of the Martians flashed down and felled him with a heavy blow. Masters seized the wrist of the unconscious man and dragged him inside. With almost a sob he closed the door and screwed it home.

"All aboard!" he called weakly. "Whoever you are in the control room, get the ship away from here!"

The *gravopotential* generators coughed and started. They could hear the ships of the Martians beating futilely against the shell of the monster, but as the space flyer gained altitude the attackers were left behind.

A Warning Too Late

MASTERS and the less seriously injured of the crew dragged the wounded into the engine room and closed the inner door of the air lock. In a few minutes they had restored the air to Earth-normal and all breathed more easily. Masters pointed to one of the pilots who had not been much hurt.

"Go up to the control room and find out who is running the ship. Take the controls, and send him down. I'm too tired to move."

The pilot staggered up the stair and presently another man came down. Masters stared at him as if unable to comprehend.

"Dick!" he finally rasped. "How in God's name did you get here?"

Dick looked at his father's torn legs and bruised arms.

"Wait till I get you bandaged up and I'll tell you all about it," he said.

"You'll tell me now and then bother with bandages!" the elder Masters commanded.

"Enough!" Dick exclaimed sharply. "I'm in command here until you are on your feet again. Here men, break out some bandages and get to work."

"Danby is dead!" another spoke up. "Broken back."

The work of caring for the wounds was finished in silence. A woman helped with the bandaging, but Masters did not see her, for he lay back with his eyes closed. Dick gathered a semblance of a crew from the least injured and adjusted the ship on her course as best he could.

"Now," said Masters, "tell me about it."

"It's really very simple," said Dick. "When you refused to let us come, Helen and I got married and stowed away in the store-room. Just before we left we sent a letter to the newspapers, telling them about our marriage and our plans for a stowaway honeymoon to

(Concluded on page 271)

The Martian Revenge

(Continued from page 211)

Mars. We didn't intend to let you know until we got back to Earth, but today something happened that seemed to make the Martians furious. After you had gone we came out of our hiding-place in the store-room. Several Martians came aboard and began to ransack the place. We watched them. After a while one of them found something in Danby's cabin. It was a round thing about four inches in diameter and colored brown—probably one of those eggs you were telling about the other night. Anyway, they got perfectly furious over it and hopped away yelling like maniacs. In about twenty seconds the whole city was in an uproar and swarms of ships began leaving in the direction you took this morning. I had found Dr. Grigson's notes and read some of them, so I understood a little about these people. We got the steel chart you used last night when you told the others where the new canal was to be, and we flew according to it. Looks like we came just in time!"

"You could handle the ship alone," said Masters, "but it takes two to pilot and drop bombs. Did Helen—er, your wife, release the bombs?"

"Certainly, dad, she's a brick. You aren't angry with me for getting married, are you?"

"Of course not! Here's all the congratulations of a father to his son," he said, extending his good hand. "Now let's hear what Dr. Grigson has to say."

Dick hurried off to the sleeping quarters and presently returned with the notes. He stopped to look at the body of Danby and then came over to the captain.

"What shall we do with Danby?" he asked.

"Bury him in space when we get out a few days," said Masters. "Let's hear what Grigson says."

He listened while Dick read from a selected page:

"I have tried to impress Dr. Masters with the danger of associating too freely with these Martians. We Earthlings seem to be unique in the scheme of evolution in that we have developed a code of right and wrong, of good and evil. These Martians, however, are more like highly intelligent animals who have absolutely no sense of right or wrong—to them there is no good or evil. So long as they are content with our visit all may be well, but I fear the carnage that might ensue should they become displeased. Judging from their psychological peculiarities I can foresee that, should they become aroused against us, their actions could not be tempered with justice, for they know nothing about justice. Furthermore, in the event of open hostility, they would show no quarter whatever, for such is their total lack of ethical sense. I—"

"Enough!" groaned Masters. "Take it away!"

THE END.

The Radium Master

(Continued from page 251)

The very bowels of the Earth seemed to be rent asunder while searing rays of radium rose from the fissures that split across the city. Her subterranean passages, a veritable honeycomb of tunnels, were breaking down under the terrific onslaught of radium. Above the hum of the airplanes' motors, their occupants could hear a low, moaning sound like the onrush of an approaching tornado. The streets were filled with people; the flying field was crowded now by many seeking safety from inevitable destruction.

And twenty-five airplanes sped swiftly northward,

barely escaping from the doomed city.

Not a living soul survived Urania. For the whole city vanished from the face of the Earth. Those who did not perish with the city itself were swallowed up by the surrounding jungle.

Since then the calm of the primeval forest has been restored. It will take ages to replace that virgin forest. But Urania is gone, a forgotten thing of the past.

And its futuristic Napoleon and all his power have gone with it. Never again will his cleverly planned monarchy menace the progress of civilization.

THE END.

What Is Your Science Knowledge?

- 1—What is one of the physical signs indicating the presence of radium? (Page 263)
- 2—What acceleration in its velocity does a falling body acquire? (Page 250)
- 3—What is the distance between Mars and the Earth at their closest approach? (Page 251)
- 4—Name one of the moons of Mars? (Page 253)
- 5—What is the atmospheric pressure at the Earth's surface? (Page 254)
- 6—If a man weighed 160 pounds on Earth what would he weigh on Mars? (Page 255)
- 7—How is it possible to photograph through a fog? (Page 241)
- 8—What are the uses of pitchblende and carnotite? (Page 242)
- 9—What is triboluminescence? (Page 247)
- 10—What is a triceratops? (Page 224)